AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Advanced Fluid Mechanics								
Course Code	MCE530		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	Mathmatical definition of fluid mechanics								
Course Content	Mathematical definitions, Basic Equations, Potantial Flow Theory, Turbulent Flow of Imcompressible Vicous Fluids, Theory of Boundary Layer, Diffusion and Dispersion								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Individual Study, Problem Solving								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	40
Quiz	3	15
Assignment	2	15

Recommended or Required Reading	
1	Kundu, P., K. And Cohen, I.R., 2004, “Fluid Mechanics”, Elsevier
2	Yunus Cengel, John Cimbala; Fluid Mechanics; Mcgraw Hill Higher Education, ISBN-13: 978-0071257640, 2006

Week	Weekly Detailed Course Contents	
1	Theoretical	Fundamental Mathmetical Definations
2	Theoretical	Fundamental Mathmetical Definations, Derivation of Continuity Equation
3	Theoretical	Equations of Motion, Euler Equations of Motion for Inviscid Fluid, Bernoulli Equations
4	Theoretical	Navier-Stokes equations of motion of Viscous Fluid
5	Theoretical	Navier-Stokes equations of motion of Viscous Fluid
6	Theoretical	Navier-Stokes equations of motion of Viscous Fluid and solution techniques
7	Theoretical	Turbulent Flow of Compressible Viscous Fluids, Reynolds Equations
8	Theoretical	Turbulent Flow of Compressible Viscous Fluids, Reynolds Equations
9	Intermediate Exam	MIDTERM
10	Theoretical	Potantial Flow Theory
11	Theoretical	Potantial Flow Theory
12	Theoretical	Boundary Layer Theory
13	Theoretical	Boundary Layer Theory
14	Theoretical	Diffusion and Dispersion
15	Theoretical	Diffusion and Dispersion
16	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Assignment	2	45	1	92
Midterm Examination	3	10	1	33
Final Examination	1	31	2	33
			Total Workload (Hours)	200
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	Students will learn fundamental equations of fluid mechanics.
2	Students will learn boundary layer theory
3	Students will learn potential flow theory
4	Students will learn features of turbulence flow
5	Students will learn diffusion and dispersion in fluid mechanics

Programme Outcomes *(Civil Engineering (English) Master)*	
1	To be able to develop expertise knowledge in a civil engineering area founded on their graduate competence.
2	To be able to use the theoretical and practical expertise knowledge gained in their specialty area.
3	To be able to use the information, problem solving and / or practical skills from the field, in interdisciplinary studies.
4	To be able to create new knowledge by integrating their knowledge area with the knowledge coming from different disciplines; and solve problems that need expertise by using scientific research methods
5	To be able to solve the problems related to his/her area by using appropriate research methods
6	To be able to devise a problem in their specialty area, develop a solution methodology, solve the problem, and interpret the results and take action if necessary
7	To be able to criticize the knowledge in their specialty area, guide the learning process, and independently direct high level studies
8	To be able to systematically communicate the recent developments in their specialty area and their own studies to groups both inside and outside their specialty area, orally, in writing and visually
9	To be able to use computer software at a level required by their specialty area with drawing upon information and communication technology at a high level
10	To be able to introduce scientific, technological, social and cultural advancements in the field of civil engineering and to contribute to the process of being an information of the society and to sustain it.
11	To be conscious of professional and ethical responsibility and contribute to the establishment of this consciousness.
12	To be able to protect social, scientific, and ethical values during collection, interpretation, and dissemination stages of the data associated with their specialty area; instruct and supervise these values
13	To be able to use at least one foreign language in a level to follow current developments related to the field.

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	5	4	5	4	5
P2	4	5	4	5	4
P3	5	4	5	4	5
P4	4	5	4	5	4
P5	5	4	5	4	5
P6	4	5	5	5	5
P7	5	4	4	5	4
P8	4	5	5	4	5
P9	5	4	4	5	4
P10	4	5	5	5	4
P11	5	5	4	4	4
P12	4	4	5	5	5
P13	5	5	4	4	4